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The Meconematinae (Orthoptera, Tettigoniidae) of the
San-in District of Western Honshu, Japan, with
Descriptions of Two New Species

By

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山崎柄根*: 山陰地方のヒメツユムシ亜科 (直翅目, キリギリス科)

Though meconematine species are known from Shikoku and Kyushu (YAMASAKI, 1982, 1983), no representative of this group of small tettigonids has been formally recorded from western Honshu.

The faunal survey of the San-in District including the Oki Islands, held in 1984 under the project of the National Science Museum, Tokyo, proved that five meconematines occur in this district. Three of them are already described, while the other two collected on Mt. Daisen are new to science.

Mt. Daisen lies at the western part of Tottori Prefecture and is the main part of the Daisen volcanic group in the Daisen-Oki National Park. Its peak attains to a height of 1,711 m and is the highest of the mountains in the district. The mid-slope of the mountain is covered with a virgin forest of beech, *Fagus Sieboldi*, which is preferred by the meconematine tettigonids.

The present paper is the fifth report dealing with the Japanese Meconematinae. All the type specimens here designated are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my hearty thanks to Mr. Masaaki TOMOKUNI, National Science Museum, for his kind aid in the field survey. I also wish to express my sincere gratitude to Dr. S.-I. UÉNO for kindly reading the original manuscript and giving valuable advice.

***Leptoteratura albicorne* (MOTSCHULSKY, 1866)**

Leptoteratura albicorne: YAMASAKI, 1982, *Bull. natn. Sci. Mus., Tokyo*, 8, p. 120, figs. 1-9.

This small species was collected from Mt. Daisen and the Island of Dôgo in the Oki Islands.

Specimens examined. 1♂, San-no-sawa, 970 m, Mt. Daisen, Tottori Pref., 15. ix. 1984 (T. YAMASAKI); 1♀, Ni-no-sawa, 970 m, Mt. Daisen, 14. ix. 1984 (T. YAMASAKI); 2♀, Masu-

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mizu-hara, 800 m, Mt. Daisen, 13. ix. 1984 (T. YAMASAKI); 1♂, Daimanji-yama, 400 m, Island of Dôgo, Oki Islands, 12. ix. 1984 (T. YAMASAKI).

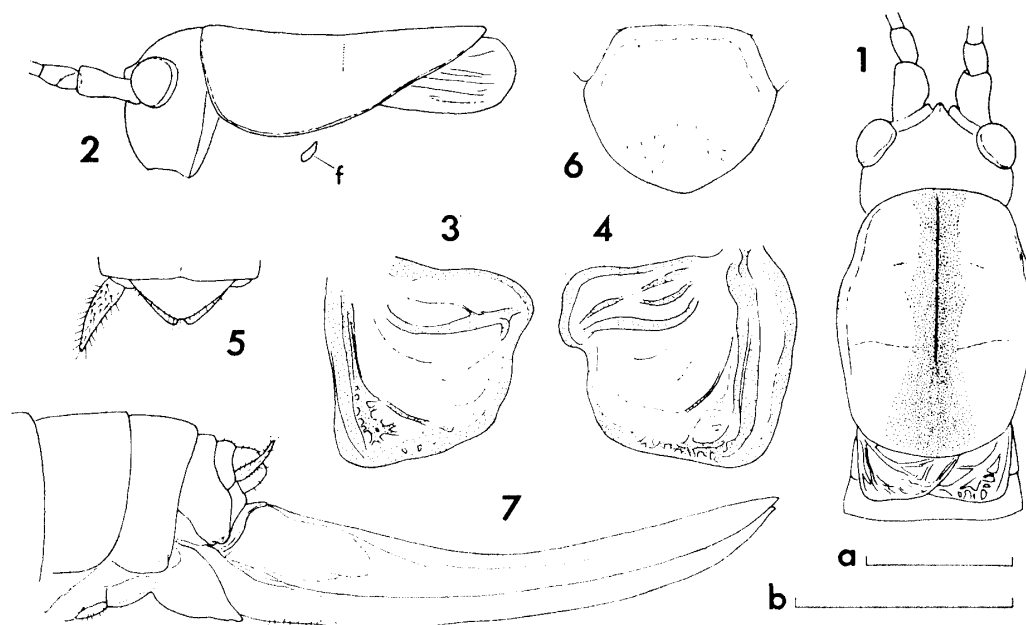
Notes. This species is widely distributed in Southwest Japan, from Honshu to Kyushu. No difference was observed between the present material and the specimens from other districts.

Tettigoniopsis monticola YAMASAKI, sp. nov.

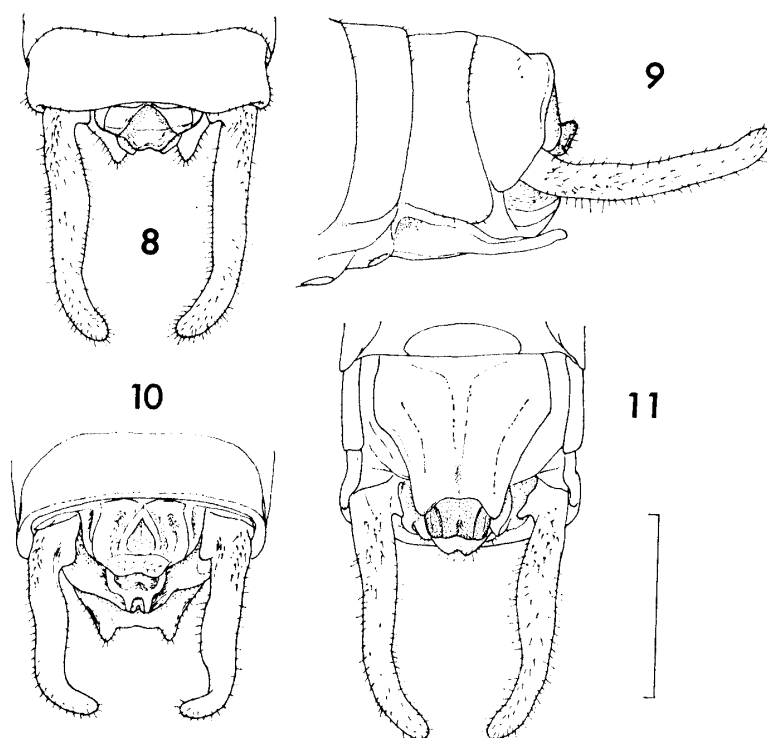
(Figs. 1-11)

Grass-green, with a chestnut brown mesal band on the dorsal surface of pronotum. Male supra-anal plate short, greatly modified and covering the caudal part between cerci. Male subgenital plate without styli. Female subgenital plate large, not incised at the tip, as in Fig. 6.

Male. Head as in Figs. 1 and 2; fastigial cone moderately protruded, with a slight sulcus. Pronotum rather short and wide as in Fig. 1; anterior margin slightly roundish and posterior margin round; disc with weak V-shaped sulcus at the centre; metazona slightly convex. Lateral foramina (auditory thoracic spiracles) clearly visible in lateral view. Fore wings as in Figs. 3 and 4, with degenerated veins; stridulatory teeth on stridulatory vein about 20 in number. Hind wings absent. Fore legs with unarmed femora; fore tibiae with 3 or 4 pairs of long spines between the auditory structure and the apical third and with one small ventro-apical spine each at external and internal marginal ends, respectively; auditory structure of fore tibiae long oval. Middle legs with unarmed femora; middle tibiae with 3 or 4 pairs



Figs. 1-7. *Tettigoniopsis monticola* YAMASAKI, sp. nov. 1-2. Male head, pronotum and fore wing, dorsal (1) and lateral (2) views. f: Lateral foramen of thorax. 3-4. Male left (3) and right (4) fore wings. 5. Female supra-anal plate and cercus, dorsal view. 6. Female subgenital plate, ventral view. 7. Female abdominal end and ovipositor, lateral view. Scales, 2 mm. Scale a is for Figs. 1, 2 and 7, and scale b for Figs. 3-6.



Figs. 8–11. Male abdominal end of *Tettigoniopsis monticola* YAMASAKI, sp. nov. 8. Dorsal view. 9. Lateral view. 10. Obliquely lower caudal view. 11. Ventral view. Scale, 2 mm.

of long spines and with two ventro-apical spines. Hind legs with unarmed femora; hind tibiae with 17–26 (24 in holotype) external and 20–24 (22) internal teeth on dorsal margins and with 1 spine on the subapical ventral margin, and apex with 4 spurs.

Abdominal end as in Figs. 8–11. Tenth tergite wide, slightly incurved posteriorly. Supra-anal plate short as in Fig. 8, covering upper half of caudal area between cerci as shown in Fig. 10, greatly modified, deeply concave dorsad; sides of the concave area forming ridges; posterior part thickened and shiny; posterior margin slightly incurved. Phallus exposed caudally and modified with two ridges posteriorly as in Fig. 10. Cerci as shown in Figs. 8–11, long, simple, with apical part incurved; apex blunt. Subgenital plate as in Fig. 11; posterior margin widely cut, its sides forming roundish triangle; stylus absent.

Female. Abdominal end as in Figs. 5 and 7. Supra-anal plate short, triangular as in Fig. 5. Cerci normal. Subgenital plate large, scutiform, not incised on the posterior margin as in Fig. 6. Ovipositor as in Fig. 7, slightly recurved in apical half; dorsal and ventral valves with pointed tips.

Coloration. Bright grass-green. Eyes reddish brown to blackish brown. Pronotum shiny and with reddish brown stripe, mesal and longitudinal, on the disc, this stripe sometimes becoming paler or darker with an additional blackish brown narrow stripe mesally as in Fig. 1; prozona with a fine white median line. Teeth of the dorsal margins of hind tibiae dark brown, apex of lower lobe of all femora black. Apical part of ovipositor pale brown.

Measurements (mm). Body length to the tip of cerci, ♂ 10.2–12.1 (12.1 in holotype);

body length to the base of cerci, ♂ 10.0–11.0 (11.0); body length to the tip of ovipositor, ♀ 16.5–20.8; body length to the base of ovipositor, ♀ 9.6–12.4; head width (extraocular distance), ♂ 2.0–2.15 (2.1), ♀ 2.2–2.4; pronotal length, ♂ 3.6–4.0 (3.7), ♀ 3.6–4.6; fore wing length, ♂ 1.7–2.1, ♀ 1.1–1.7; hind femoral length, ♂ 8.3–9.1 (8.6), ♀ 9.2–10.9; hind tibial length, ♂ 8.7–10.1 (9.8), ♀ 10.0–11.5; cercal length, ♂ 2.5–2.8 (2.5); ovipositor length, 7.1–9.8.

Type series. Holotype: ♂, Yokote-michi, 880 m, Mt. Daisen, Tottori Pref., 15. ix. 1984 (T. YAMASAKI). Paratypes (including allotype): 3♂ 9♀ (one female is designated as the allotype), same data as the holotype; 6♂ 4♀, Yokote-michi—Ni-no-sawa, 880–970 m, 15. ix. 1984, Mt. Daisen (T. YAMASAKI).

Type locality. Mt. Daisen, Tottori, Honshu, Japan.

Distribution. Known so far only from the Chugoku District, but possibly occurs in the adjacent areas.

Notes. The present new species is similar to *Tettigoniopsis forcipicercus*, but is different in having no stylus in male subgenital plate and in greatly modified supra-anal plate and phallus.

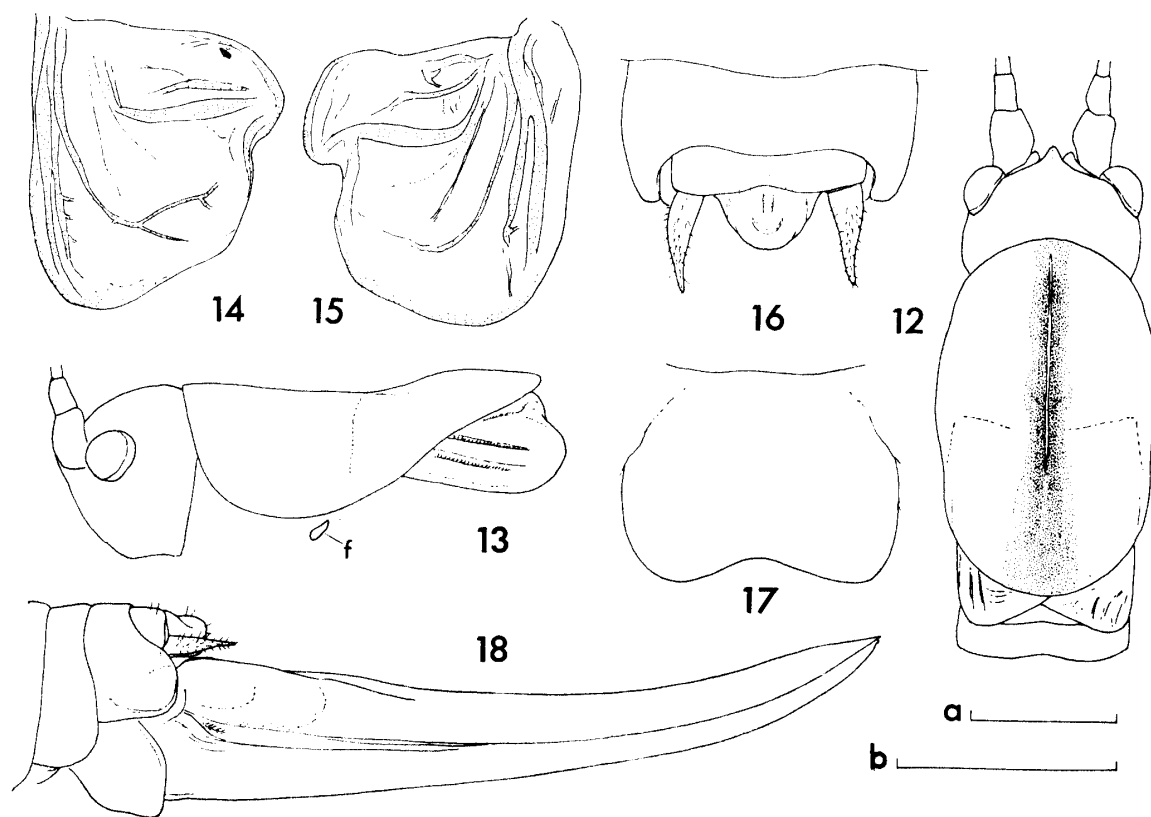
***Tettigoniopsis daisenensis* YAMASAKI, sp. nov.**

(Figs. 12–21)

Rather large for a meconematine tettigoniid. Male supra-anal plate modified as in Fig. 20. Cerci with triangular lobe on the ventro-internal face basally as in Figs. 19–21. Male subgenital plate without stylus. Female subgenital plate very wide and incurved on the posterior margin.

Male. Head moderate; fastigial cone moderately protruded with a weak sulcus. Eyes subglobular. Pronotum as in Figs. 12 and 13, wide, with a V-shaped sulcus just before the centre; metazona convex for keeping fore wings. Lateral foramina (auditory thoracic spiracles) (f in Fig. 13) clearly visible in lateral view. Brachypterous as in Figs. 14 and 15, with degenerated veins; stridulatory vein broad and distinct; stridulatory teeth a little more than 80 in number. Hind wings absent. Fore and middle legs with unarmed femora; tibiae with 3 internal and 4 external spines on the ventral margin and with a pair of small spines at the apex; auditory structure of fore tibiae widely elliptical. Hind legs with unarmed femora; tibiae with 25 to 27 teeth on the dorsal margins, 2 external and 1 internal spines on the subapical ventral margins, and with 4 spurs at the apex. Mesothoracic basisternite with round tubercles at the lateral sides, metathoracic basisternite also with tubercles, which are lower and a little elongated laterally; tubercles with setae.

Abdominal end as shown in Figs. 19–21. Tenth tergite normal. Supra-anal plate elongated and modified; basal half deeply concave with coriaceous ridges whose bases are united with each other and then dilated posteriorly, apical half becoming round, wide and thick, having a deep incision as shown in Figs. 20 and 21. Phallus shaped like a closet stool; dorso-internal margin coriaceous and finely granulate. Cerci as in Figs. 19–21, very wide in the base, basally with a triangular lobe on the ventro-internal face and dorsally with a thin gently-sloping ridge on the dorso-internal face; apical half simple, blunt at the tip. Subgenital plate as in Fig. 21; posterior margin incised wide-triangularly, without



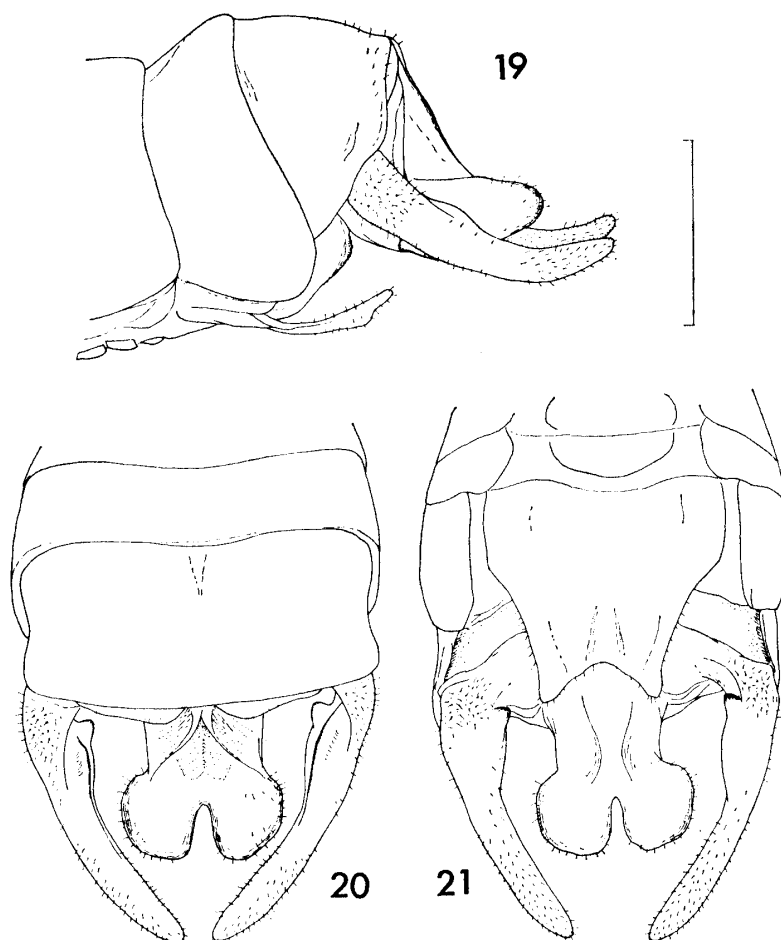
Figs. 12–18. *Tettigoniopsis daisenensis* YAMASAKI, sp. nov. 12–13. Male head, pronotum and fore wing, dorsal (12) and lateral (13) views. f: Lateral foramen of thorax. 14–15. Male left (14) and right (15) fore wings. 16. Female abdominal end, dorsal view. 17. Female subgenital plate, ventral view. 18. Female abdominal end and ovipositor, lateral view. Scales, 2 mm. Scale a is for Figs. 12, 13 and 18, and scale b for Figs. 14–17.

styli.

Female. Fore wings mostly concealed under pronotum. Abdominal end as in Figs. 16 and 18. Supra-anal plate short and semicircular. Cerci normal. Subgenital plate wide as in Fig. 17, widely incurved on the posterior margin; latero-posterior parts round. Ovipositor as in Fig. 18; apical half slightly recurved; tip pointed in dorsal valves and with a weak hook in ventral valves.

Coloration. Bright grass-green with reddish brown, mesally dark brown, stripe on the disc of pronotum, which becomes wider on the metazona of pronotum. A median whitish narrow longitudinal line present on prozona. Teeth of the dorsal margins of hind tibiae dark brown, apex of lower lobe of all femora black. Apical part of ovipositor pale brown.

Measurements (mm). Body length to the apex of cerci, ♂ 12.2–13.8 (13.2 in holotype); body length to the base of cerci, ♂ 10.0–11.0 (11.0); body length to the apex of ovipositor, ♀ 19.0–22.5; body length to the base of ovipositor, ♀ 11.0–14.1; head width (extraocular distance), ♂ 2.2–2.4 (2.3), ♀ 2.3–2.5; pronotal length, ♂ 4.7–5.1 (5.1), ♀ 3.9–5.1; fore wing length, ♂ 2.8 (2.8), ♀ 1.4–1.8; hind femoral length, ♂ 10.0–10.7 (10.1), ♀ 9.5–11.9; hind tibial length, ♂ 10.6–11.5 (11.2), ♀ 10.8–12.6; cercal length, ♂ 3.1–3.4 (3.3); ovipositor length, 8.2–10.0.



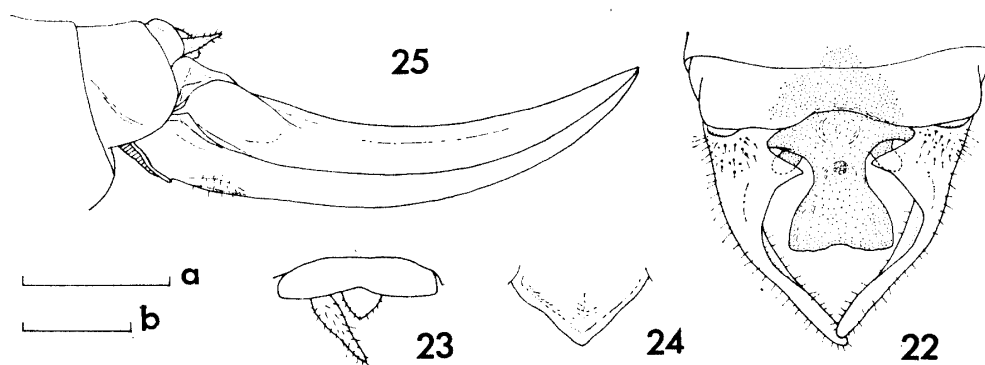
Figs. 19–21. Male abdominal end of *Tettigoniopsis daisenensis* YAMASAKI, sp. nov. 19. Lateral view. 20. Dorsal view. 21. Ventral view. Scale, 2 mm.

Type series. Holotype, ♂, Masumizu-hara, 800 m, Mt. Daisen, Tottori Pref., Japan, 13. ix. 1984 (T. YAMASAKI). Paratypes (including allotype): 1♂ 2♀ (one female is designated as allotype), same data as the holotype; 1♀, Yokote-michi, 880 m, Mt. Daisen, 14. ix. 1984 (T. YAMASAKI); San-no-sawa, 970 m, Mt. Daisen, 15. ix. 1984 (T. YAMASAKI); 2♂ 4♀, San-no-sawa—Kagami-ga-naru 960–970 m, Mt. Daisen, 15. ix. 1984 (T. YAMASAKI and M. TOMOKUNI).

Type locality. Mt. Daisen, Tottori, Honshu, Japan.

Distribution. Known so far only from the type locality.

Notes. This species is remarkable in the unique modification of the male supra-anal plate and phallus, the absence of styli on the male subgenital plate, and in the peculiar shape of male cerci. Judging from these peculiarities, this new species seems closely related to *Tettigoniopsis miyamotoi* from Shikoku (YAMASAKI, 1983b).



Figs. 22–25. *Cosmetura fenestrata* YAMASAKI. 22. Male abdominal end, dorsal view. 23. Female abdominal end, dorsal view. 24. Apical half of female subgenital plate, ventral view. 25. Female abdominal end and ovipositor, lateral view. Scale a, 2 mm, is for Fig. 25, and scale b, 1 mm, for Figs. 22–24.

***Cosmetura fenestrata* YAMASAKI, 1983**

(Figs. 22–25)

Cosmetura fenestrata YAMASAKI, 1983c, *Mem. natn. Sci. Mus., Tokyo*, (16), p. 141, figs. 9–15.

The original description of this species was based on two males only. Additional account of the male and the first description of the female are given below.

Male. The supra-anal plate of the holotype male is roundish at the postero-lateral part. In the Daisen specimen, however, this part is not roundish, but somewhat angulate (Fig. 22).

Female. Pronotum not so convex as in the male. Fore wings oval, mostly concealed under metazona of pronotum.

Abdominal end very similar to that of *C. ficifolia*, as shown in Figs. 23 and 25. Supra-anal plate as shown in Fig. 23, short, scutiform. Cerci normal. Ovipositor short as in Fig. 25, strongly inflated in basal part, recurved in the middle, and sharp at the apex. Subgenital plate as in Fig. 24, triangular in posterior half.

Measurements (mm) in female. Body length to the tip of ovipositor, 16.0; body length to the base of ovipositor, 10.0; head width (extraocular distance), 2.2–2.4; pronotal length, 4.6–4.9; fore wing length, 1.3–1.5; hind femoral length, 9.6–10.3; hind tibial length, 9.8–11.1; ovipositor length, 7.1–8.8.

Specimens examined. 1♂ 2♀, Masumizu-hara, 800 m, Mt. Daisen, Tottori Pref., 13. ix. 1984 (T. YAMASAKI).

Notes. Compared with *C. ficifolia*, this species has shorter and more recurved ovipositor and a little shorter subgenital plate in the female.

***Nipponomeconema hidaense* YAMASAKI, 1983**

Nipponomeconema hidaense YAMASAKI, 1983a, *Annot. zool. japon.*, 56, p. 65, figs. 9, 13, 24, 25 and 28.

Specimens examined. 2♀, Masumizu-hara—Ni-no-sawa, 800–970 m, Mt. Daisen, Tottori

Pref., 14. ix. 1984 (T. YAMASAKI); 1♀, San-no-sawa, 970 m, Mt. Daisen, 15. ix. 1984 (T. YAMASAKI).

Notes. A close examination of the specimens recorded above proved that they are identical with *N. hidaense*, previously known only from the Hida Province in Gifu Prefecture (YAMASAKI, 1983a).

摘 要

従来、本州から九州にかけてのヒメツユムシ類相については、YAMASAKI (1981, 1983a, b, c) による報文によって知られるが、中国地方あるいは山陰と限定すると、公式にはこれまで何も報告されていない。

1984年に行われた日本列島の自然史科学総合研究による、山陰地方の調査によって、この類の5種が確認できたので本報告にまとめた。これらのうち伯耆大山より得られた2種は新種で、*Tettigoniopsis monticola* (ミヤマブキリモドキ：新称) および *T. daisenensis* (ダイセンブキリモドキ：新称) として記載した。残る3種は既知種の *Leptoteratura albicorne* MOTSCHULSKY (ヒメツユムシ), *Cosmetura fenestrata* YAMASAKI (トゲヌキコバネササキリモドキ) および *Nipponomeconema hidaense* (ヒダツユムシリモドキ) である。

なお、*C. fenestrata* の雌はこれまで未記載であったので、これも伯耆大山産の標本を用いて記載し、併せてこの種の雄についての補足的な記載を行った。

References

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